A Minimalist Approach to the Structure of English Tensed Restrictive Relative Clause Construction

Kyoung-Sun Hong*

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I. Introduction

The structure of English tensed relative clauses has been a controversial issue among linguists for over 30 years. In this paper I will propose the structure of English tensed restrictive relative clauses based on their characteristic syntactic behaviors within the minimalist approach to the grammar of natural languages.[1] English restrictive relative clauses show distinctive
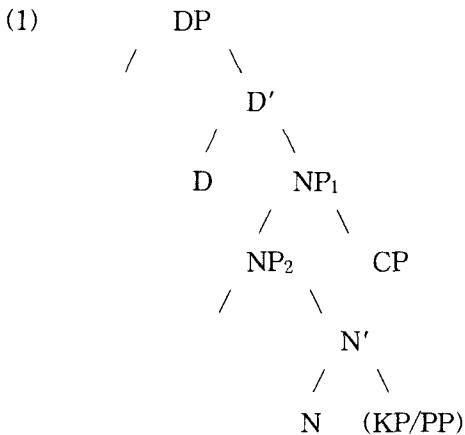
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* 제주대학교 영어교육과 전임강사

1) For the current version of the theory, refer to Chomsky (1988,1992), Chomsky and Lasnik (1991), Lasnik (1993), and Yang (1992,1993)

structural behaviors which can be differentiated from the other similar constructions such as appositive relative and cleft constructions.
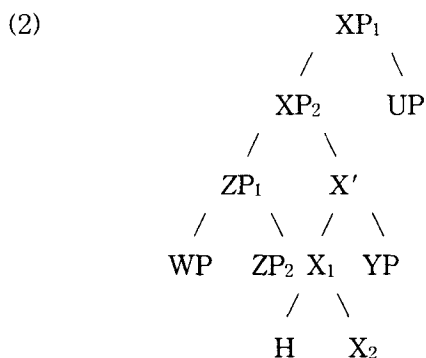
II. The Proposal

Within DP framework I will argue for the adjunction structure of relative clauses as in (1). First it will be checked whether this structure is admissible in the minimal X′ theory. Then the proposal will be supported by evidence from the idiom chunks and *there* construction as well as from the reduced relative clauses.

(1)

```
              DP
           /      \
                    D′
                  /    \
                D      NP₁
                      /    \
                   NP₂      CP
                  /    \
                         N′
                       /    \
                      N    (KP/PP)
```

In (1) the functional head D selects NP₁ which is composed of the relative NP₂ and the relative CP. Predication holds between the lower NP₂ and the relative CP, satisfying the condition of mutual c-command. N does not L-mark the CP as is expected.
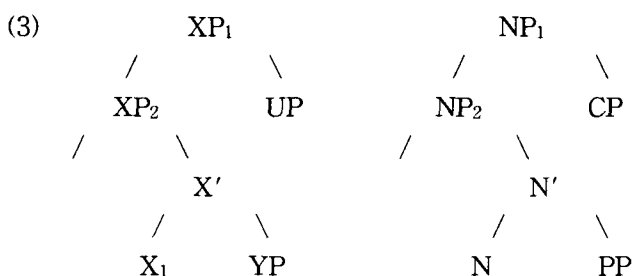
1. An Admissible Adjunction Structure

The structure (2) is presented as an admissible structure in the minimal X′ theory. In (2) the position of adjunction is placed on the right.[2]

(2)

$$
\begin{array}{c}
XP_1 \\
\diagup \quad \diagdown \\
XP_2 \quad UP \\
\diagup \quad \diagdown \\
ZP_1 \quad X' \\
\diagup \quad \diagdown \quad \diagup \quad \diagdown \\
WP \quad ZP_2 \; X_1 \; YP \\
\diagup \quad \diagdown \\
H \quad X_2
\end{array}
$$

From (2) we can see that adjunction is allowed to the level of XP and X^0, but not to the X′.

At this point, we note that the structure proposed in (1) is exactly the same pattern as (2). Let us compare the two structures.

(3)

$$
\begin{array}{cc}
\begin{array}{c}
XP_1 \\
\diagup \quad \diagdown \\
XP_2 \quad UP \\
\diagup \quad \diagdown \\
\quad X' \\
\diagup \quad \diagdown \\
X_1 \quad YP
\end{array}
&
\begin{array}{c}
NP_1 \\
\diagup \quad \diagdown \\
NP_2 \quad CP \\
\diagup \quad \diagdown \\
\quad N' \\
\diagup \quad \diagdown \\
N \quad PP
\end{array}
\end{array}
$$

The abstract XP can be replaced with NP, and UP is replaced with CP, and YP with PP. So (1) proves to be a legitimate adjunction structure in the

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2) Chomsky (1992) simply adds that "order is irrelevant."

minimalist framework.

2. The Level of a Relative Noun Phrase in X' Theoretic Terms

Let us consider the category level marked as NP$_2$ now. For the target position, NP$_2$, we have assumed the NP without any discussion. But there seems to be no agreement on the target position among the linguists.[3] So we raise a question: Which bar-level would it be the most appropriate within the DP framework, N, N', or NP? To decide on the bar-level, we have to check what can be relativized.

(4) a. Some [advocates of that position] who are particularly militant demand
       annihilation

    b. John read a [book by Henry James] that was very long

    c. The [largest creature once common here] which is now extinct
       is the brontosaurus (Stockwell et al. 1973)

    d. There is no [gamma coindexed with alpha] that is c-commanded by
       alpha and c-commands beta. (Browning 1987)

The examples in (4) show us that noun phrases, as well as a single noun, can be relativized. (4b, c, d) show us that "reduced relative clauses" are relativized.
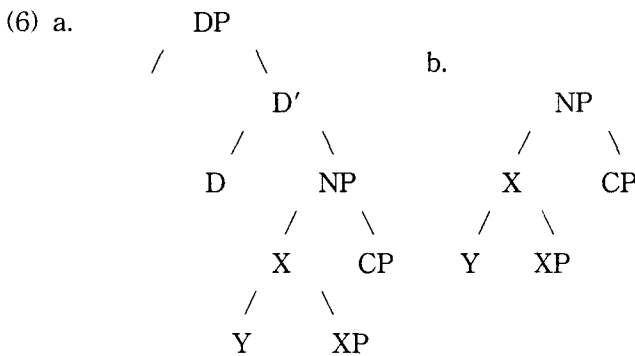
Let us look at the position of relative noun phrases more closely. To find out the right answer, the target position is marked as X.

(5) a. [DP   some [NP [X [[Y advocates] [PP of that position]] [CP]]]
    b. [DP   a [NP [X [[Y book] [PP by Henry James]] [CP]]]

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3) Refer to Chomsky (1965, 1973, 1986), Stockwell, Schachter and Partee (1973), Fukui
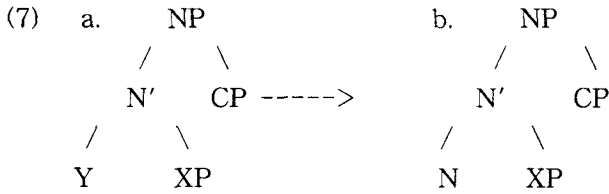   and Speas (1987), Abney (1987), and Yang (1993).

　　　c. [DP the [NP [X [[Y largest creature] [AP once common here]] [CP]]]

　　　d. [DP no [NP [X [[Y gamma] [VP coindexed with alpha]] [CP]]]

In (5) X occurs with PP, AP and VP. That means X occurs with maximal projection XP. What happens in (4) can be outlined as this: First, [Y] forms a constituent with [XP] and, in turn, this combination [X] forms a constituent with [CP], which produces a NP as a whole. The structure can be drawn as this:

(6) a.　　　　　DP
　　　　　/　　　\　　　　　b.
　　　　　　D′　　　　　　　　NP
　　　　　/　　\　　　　　　/　　\
　　　　D　　NP　　　　　X　　CP
　　　　　/　　\　　　　/　\
　　　　X　　CP　　Y　　XP
　　　　/　\
　　　Y　　XP

For convenience, focus on (6b) for the adjunction process. The relation between the relative noun phrase X and the relative CP is adjunction. So X should satisfy the form of (3). For the target position X, N cannot not be a good candidate because strict projection principle of X′ theory is respected in the minimalist framework. That means, X^0 can project "through X′ " to XP. The level of X′ is never cancelled in the minimal X′ theory. Accordingly, N is impossible in that the level of N′ will not be available if N occupies that position.

Next, let us take N′ for the target position as illustrated in (7a).

(7)   a.   NP   b.   NP
          /   \   /   \
        N'   CP ----->   N'   CP
       /   \   /   \
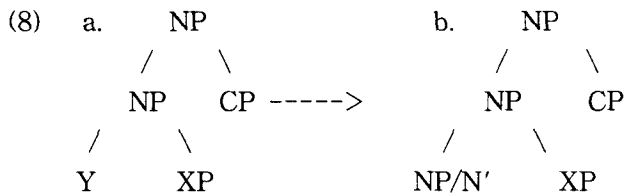   Y   XP   N   XP

For the position of Y in (7a), N is the only candidate in accordance with the X' theory. At this point, we have to examine the relationship between XP and Y, in order to check whether Y is N or not.

Take a look at the examples in (5) again.

(5) a. [$_{DP}$ some [$_{NP}$ [x [[$_Y$ advocates] [$_{PP}$ of that position]] [CP]]]

   b. [$_{DP}$ a [$_{NP}$ [x [[$_Y$ book] [$_{PP}$ by Henry James]] [CP]]]

   c. [$_{DP}$ the [$_{NP}$ [x [[$_Y$ largest creature] [$_{AP}$ once common here]] [CP]]]

   d. [$_{DP}$ no [$_{NP}$ [x [[$_Y$ gamma] [$_{VP}$ coindexed with alpha]] [CP]]]

In (5a) PP is a complement of Y so we are tempted to analyze Y as N. But the following constituents in (5b,c,d) cannot be considered as a complement of Y. So we can say that Y is not N here. Then N' is a possible position for Y. N', however, is rendered inappropriate for the target position in that adjunction is possible to X^0 and XP only, not to X' in the minimalist program.

Now consider NP for the target position.

(8)   a.   NP   b.   NP
          /   \   /   \
        NP   CP ----->   NP   CP
       /   \   /   \
      Y   XP   NP/N'   XP

As expected, the relative CP is in an adjunct position just as UP in (3), and Y can take two kinds of positions, N' and NP. In fact, Y is the level of N' in

(5a) while Y is the level of NP in (5b,c,d). Thus the target position X should be analyzed as NP in X′ theoretic terms.

To confirm my proposal, look at (5b,c,d) from another angle. In (5b,c,d) reduced relative clauses look like small clauses. But they differ in taking the matrix category because reduced relative clauses always project to NP as in (9b), while small clauses project to the maximal projection of different categories depending on their internal predicate as in (9a).[4]

(9) a. I consider [$_{AP}$ John [$_{AP}$ proud of himself]]

    b. [$_{DP}$ The [$_{NP}$ [$_{NP}$ boy] [$_{VP}$ working on the farm]] is very honest.

Moreover, the subject-predicate relation observed in the reduced relatives is non-theta-related, whereas that relation in small clauses is theta-related.

Within the minimalist program two predication structures are available: X′-predication and XP-predication (Yang 1992, 1993). X′-predication describes the theta-related predication under the VP-internal subject hypothesis. On the other hand, the structure of operator-variable construction including a predicate variable is analyzed as XP-predication. This predication is non-theta-related. Accordingly, the non-theta-related relative clause construction has to take the form of XP predication. To satisfy XP predication, NP is required for the target position X.

Therefore, we can safely conclude that the target position must be NP in the minimal X′ theory, in order to be a legitimate structure.

3. Idiom Chunks and *There* Construction

There is crucial evidence supporting my proposal, against Chomsky (1965,
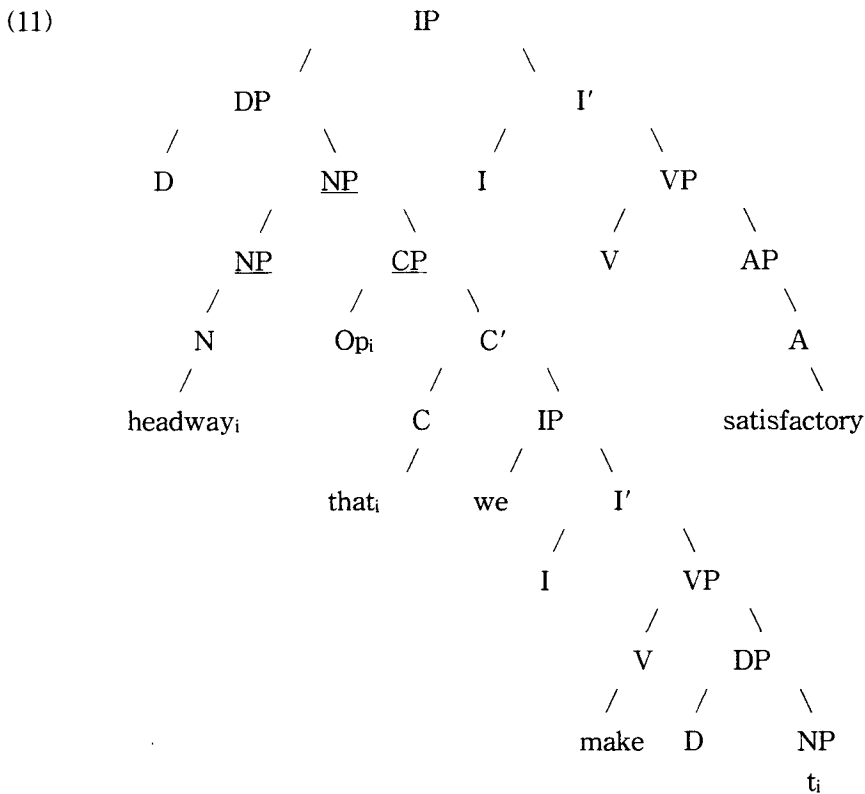
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4) Refer to Chomsky and Lasnik (1991) and Stowell (1981) for the categories of small clauses.

1986) and Abney (1987). Brame (cited in Schachter 1973) notes the behavior of certain idioms like *make headway* in relation to relative clause constructions. The noun *headway* is normally restricted to occurrence as the object of *make*.

(10) a. We made headway.

　　 b.*We made the headway.

　　 c.*The headway was satisfactory.

　　 d. The headway that we made was satisfactory.

Judging from (10a) and (10b), we see that the determiner *the* must not intervene between *make* and *headway.* From (10a), (10b), and (10c), we recognize that *headway* should occur as the object of *make*. Thus, the grammaticality of (10d) is accounted for if we show that *headway* is still restricted to occurrence as the object of *make* and the determiner *the* does not interfere between *make* and *headway*. It suggests that a gap in the relative clause must be the reflection of the relative noun only, not the matrix noun phrase as a whole. The structure of the relative clauses proposed in (1) predicts the same grammaticality for (10d) satisfying the two requirements mentioned just before.

Let us draw the tree structure of (10d) on the basis of my proposal in (1):

(11)
```
                              IP
                         /          \
                    DP                    I'
                 /      \              /        \
              D            NP        I              VP
                         /    \                  /      \
                     NP        CP            V          AP
                   /        /      \                        \
                N        Op_i        C'                        A
              /        /      \                                   \
         headway_i       C        IP                      satisfactory
                       /        /      \
                   that_i      we        I'
                                      /      \
                                   I          VP
                                           /      \
                                        V          DP
                                      /        /      \
                                   make      D          NP
                                                          t_i
```

Thus, a relative NP and relative CP is construed as one constituent, and a D as the other one. The following evidence noted in Schachter (1973) also supports my argument.

(12) a.*Headway was satisfactory.

b.?We made headway which was satisfactory. (Schachter 1973)

The status of (12b) is apparently unclear, but according to my analysis *made* is combined with *headway which was satisfactory*.

The size of the set of attributive adjectives that can occur with *headway*, as indicated by Schachter, is a rather small one, consisting of certain adjectives of evaluation (*satisfactory, excellent* etc.) and adjectives expressing rate of speed

(*slow, rapid* etc.); and to that extent *make* + *headway which was satisfactory* seems to be treated like *make satisfactory headway* as the idiom seems feasible.

Browning (1987) also offers an interesting contrast between relative clauses and clefts. Gaps in relative clauses appear to be indefinite even when the relative heads are definite.

(13) a.*There were the men in the garden.

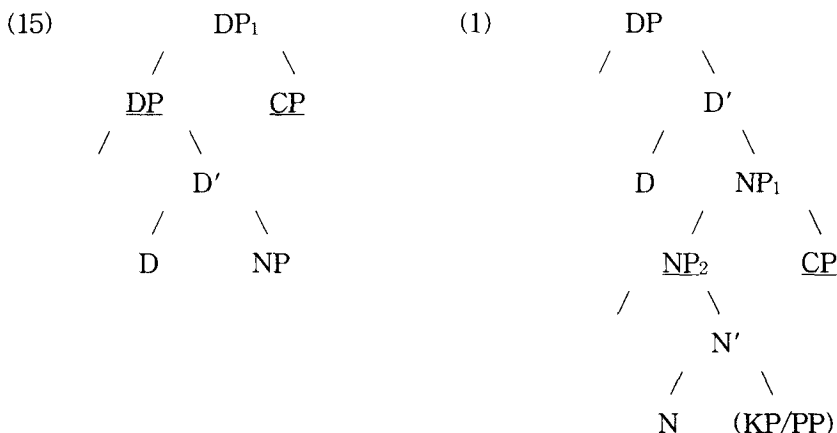　　b. The men that there were t in the garden were all diplomats.

The grammaticality of the sentences given in (13) indicates that the gap in (13b) is construed as an indefinite.

In contrast, the gap in a cleft is not construed as an indefinite when the antecedent is definite.

(14) a.*It was the men that there were t in the garden.

　　b.*It was the headway that we made t on that problem.

With (14), we cannot say that the trace is indefinite because it is an empty category (EC). In (14) the trace is understood as definite even though it is an EC. Thus we have to find another explanation.

At this point, let us turn to the notion of domain presented in the minimalist theory (Chomsky 1992). Recall that the checking domain is typically involved in checking inflectional features. The checking domain includes the Spec and the adjunction position. Let us consider the checking domain of the structure (15) proposed by Yang (1993) as well as that of (1).

```
(15)            DP₁                (1)            DP
           /        \                        /        \
         DP          CP                                D'
       /    \                                      /      \
              D'                                  D        NP₁
            /    \                                       /      \
          D       NP                                  NP₂         CP
                                                    /    \
                                                          N'
                                                        /    \
                                                       N    (KP/PP)
```

In (15) CP is the checking domain of D. It means that the features of D are involved in checking the operator-variable chain of CP. But in (1) CP is the checking domain of N. Then the features of N are involved in checking the chain of CP. It means that the features of D are excluded in checking features of CP in (1).

Following my proposal, restrictive relative clause construction is supposed to have the structure of (1) while cleft construction is supposed to have the structure equivalent to (15). Accordingly, in (13) only *men* is involved in checking the operator-variable chain (Op, t) of the relative CP, whereas *the men* is involved in checking (Op, t) of the cleft CP in (14). Therefore, the trace in (13) is free from D--that is, D is not decided--and understood as indefinite, while the trace in (14) is construed as the one with D. Without any stipulation, we have explained what makes such a grammaticality contrast between (13) and (14) by using the notion of domain already available in the theory.

However, we will fall into trouble if we accept (15) as the structure of restrictive relative clause construction as well as that of cleft construction. We may need some stipulation to exclude the feature of definiteness from the EC in the relative CP. Thus my proposal proves to be superior to Yang's (1993).

4. Why Are Adjuncts So Rarely Relativized?

A restrictive relative clause can take as its relative noun phrase a very limited range of adjuncts called "bare-NP adverbs" (Larson 1985). Following Larson, the bare-NP adverbs are licensed to appear as relative adverbials or independently because they possess an exceptional Case-marking feature, which allows them to be licensed in non-Case-marked positions.

(16) a. the month (that) you traveled to France   e

       day

       *vacation

   a. the *occasion (that) you traveled to France   e

   b. the place   (that) you live   e

       *location

       *street

   c. the way   (that) you talk   e

       *manner

       *fashion

   d. the way   (that) you are traveling   e

       direction

       *course

       *path   (Larson 1985)

In (16a), for example, *month* has an exceptional Case-marking feature to be licensed in non-Case-marked positions in e in the relatiave CP. So it is acceptable. On the other hand, *vacation* in (16a) does not have such a feature so it is not licensed. That means, only NP-like adverbs can be licensed as a restrictive relative noun phrase.

Moreover, PP is not relativized on in restrictive relative clauses:

(17) a.*with a hammer that she fixed the car e

　　 b.*on Tuesday that I read the letter e

On the other hand, clefts allow a much wider range of adjuncts including PP to appear in its construction:

(18) a. It was [with a hammer] that she fixed the car e.

　　 b. It was [that place] that I read the letter e.

　　 c. It was [on Tuesday] that I met you for lunch e.

　　 d.??It was [very carefully] that I opened the door e.

<div align="right">(Browning 1987)</div>

As revealed in (18), not only bare-NP adverbs but PPs and even ordinary adverbs can be licensed in clefts.

Let us take a look at one more case, appositive relatives, to examine the distribution of adjuncts. As noted by Jackendoff (1977)[5], appositive relatives generalize across syntactic categories:

(19) a. [DP John's book, [which I don't plan to read],] is about horses

　　 b. At least Anne is [AP grateful for my help, [which you aren't]]

　　 c. We went [PP from Aspen to Denver, [which seems like a long way],
　　　　] in just four days

　　 d. Peter [VP walks home from school every day, [which you ought to
　　　　 do too]]

　　 e. [IP Nancy washed all of the dishes, [which shocked me]]

As exemplifed in (19), not only PPs but the other categories can be licensed in appositives.

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5) Jackendoff (1977) is cited in Stowell (1981).

Why do we have such differences in distribution of adjuncts? In my framework, DP is assigned to the appositive relative noun phrase and the antecedent position of the cleft, while NP is assigned to the restrictive relative noun phrase.

Let us consider the differences between NP and DP. While DP functions independently, NP cannot because NP must be selected by D. Thus DP position is more easily replaced with the other categories, PP in particular, if they are licensed.[6] But NP position cannot be replaced with other categories because this position must be selected by D. That is why PPs and ordinary adverbs cannot be licensed in this position. Only a group of words called "bare-NP adverbs" can occur because of their exceptional nominal property.
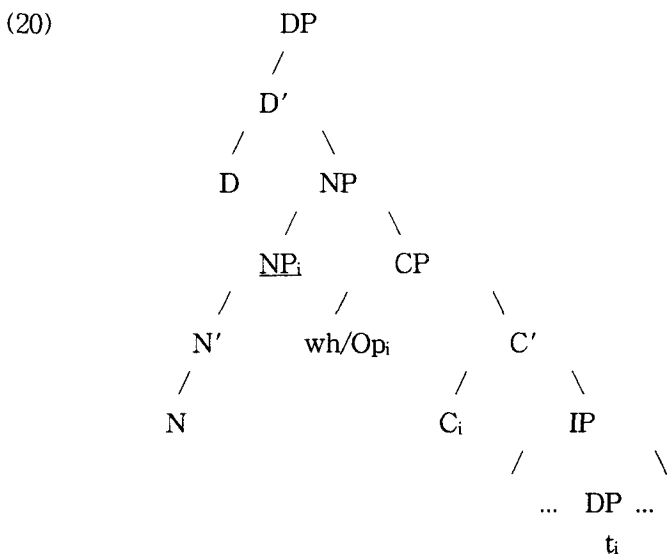
Therefore, I argue that those differences observed in (16) to (19) also support my proposal.

5. How Can We Handle Syntactic Mismatch?

In this section we will show how the syntactic mismatch caused by the structure in (1) can be handled.

Let us take a look at the structure in (20).

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6) In topicalization and extraposition (Heavy NP Shift), DP is supposed to move to the right or the left. PP is also topicalized and extraposed.
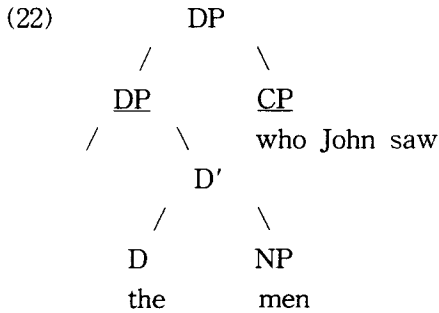
(20)

```
                    DP
                   /
                  D′
                 /    \
                D      NP
                      /    \
                   NPᵢ      CP
                  /     /        \
                N′    wh/Opᵢ      C′
               /               /    \
              N               Cᵢ     IP
                             /          \
                          ... DP ...
                               tᵢ
```

It is noted that t_i in the relative CP is categorized as DP and yet, NPi with a D excluded is chosen as its antecedent. There is a mismatch between the DP category of t_i in the relative CP and its antecedent, NP_i. But this apparent mismatch will turn out to be a rather balanced description if we consider the reference of restrictive relative clause construction from semantic viewpoint. Semantically, the reference of the restrictive relative clause is the intersection of the sets defined by the relative NP and the relative CP, as Lasnik and Stowell (1991) point out. In other words, the reference of the restrictive relative DP is decided after relativization.

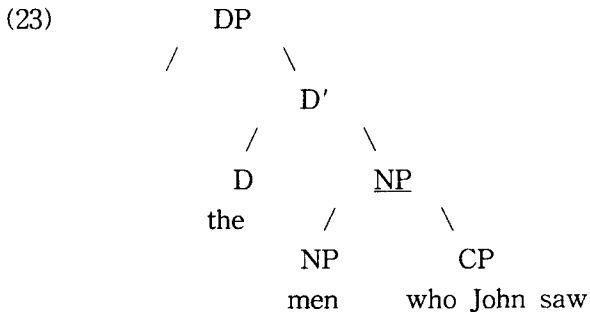Let us take an example in (21) to see what we mean more clearly.

(21)   the men who John saw

In (21) the reference of the relative clause is the intersection of the set *men* (denoted by the relative NP) and the set of human individuals that *John saw* (denoted by the relative CP). To identify the semantic range of the relative DP *the men who John saw* we need both pieces of information, the semantic range

of *men* and that of *who John saw*. So if we put *the* in front of *men*, as in Yang's in (15), which means *the* modifies one subset only, as seen in (22).

(22)
```
              DP
            /    \
         DP        CP
        /  \      who John saw
            D'
          /   \
        D       NP
        the     men
```

But in my proposal *the* is placed before the combination of NP with CP, as in (23).

(23)
```
               DP
             /     \
                     D'
                   /    \
                 D        NP
                the     /    \
                      NP       CP
                      men    who John saw
```

Here the structure itself shows the scope relation as it is without any modification, which goes with the minimalist spirit.

To catch the difference between the reference of DP and that of NP that we have discussed, let us take another example (24) from appositive relatives, to which I assign the structure in (15).

(24) the men, who John saw

In (24), the reference of *men* is decided by *the* and it refers to a set of certain men which covers exactly the same range as the one indicated by the relative CP *who John saw*. To identify the semantic range of *the men*, *who John saw*, we do not need both pieces of information because either expression refers to the same semantic range. In fact, there is no semantic difference even if the relative CP is omitted--CP which functions parenthetically can be omitted. Thus *the* should modify *men* and form a DP in order to have an independent reference, as in (15).

Therefore, the apparent syntactic mismatch observed in my proposal turns out to be an accurate semantic description of the restrictive relative clause construction, structurally differentiated from the appositive relative construction.

The limited distribution of pronouns with restrictive relative clauses, as noted in Greenbaum and Quirk (1990), also suggests that my proposal is on the right track. Modification of pronouns is very rare. However, pronouns are modified by relative clauses, chiefly in formal style.

(25) a. We who fought for this principle will not lightly abandon it.

    b. He or she who left a case in my office should claim it as soon as possible.

    c. They that (*They who) is rare, those who being preferred.

As seen in (25), those cases have generic rather than specific reference, as in the proverbial:
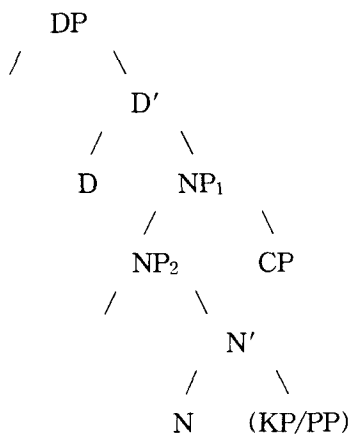
(26) He (i.e. 'Anyone') who hesitates is lost.

Greenbaum and Quirk's observation also goes with our explanation that the reference of the ECs in relative clauses is indefinite. For the reference of pronouns to be indefinite, pronouns have to take on generic meaning. With

generic reference, pronouns employed as the relative NPs can avoid the semantic conflict with the indefinite reference of the ECs occurring in relative clauses.

Ⅲ. Conclusion

The particular hierarchical structure as presented below is proposed for English tensed restrictive relative clauses on both conceptual and empirical grounds within the minimalist approach.

```
            DP
          /    \
              D′
            /    \
          D      NP₁
               /     \
            NP₂      CP
          /    \
                N′
              /   \
            N   (KP/PP)
```

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